

Electric Motors and Generators



This printing press is run by an electric motor.

Whether you know it or not, there are electric motors all over your home. Electric motors are in clocks, in hair dryers, and in record players. They are in air conditioners, refrigerators, and washing machines. Outside your home, there are much bigger electric motors in many kinds of machines, such as trains and printing presses.

What is an electric motor? An electric motor is a machine that changes electric energy into mechanical energy. As you know, mechanical energy is needed to make anything move.

Electric motors use electromagnets and regular magnets. An electric current passed through the electromagnet keeps changing directions. This makes the poles of the electromagnet change. The north pole becomes the south pole, and the south pole becomes the north pole. Because of this change, its north pole is always lined up with the north pole of the regular magnet. The two north poles repel, making the electromagnet keep turning. As the electromagnet turns, it turns a rod that can run a machine. Belts can be attached to the rod. The belts can move machine parts.

In today's world, it is difficult to find a machine that is not run by an electric motor. A car uses an electric motor to start its engine. Once the engine is running, a belt is used to run a generator. The generator makes current to keep the engine running and to recharge the car's battery.

A. Make a list of six machines that are run by electric motors.

B. Fill in the missing words.

1. An electric motor is a machine that changes electric energy into _____ energy. (mechanical, solar)
2. _____ energy is needed to make anything move. (Motor, Mechanical)
3. Electric motors use electromagnets and _____. (regular magnets, generators)
4. The electromagnet in an electric motor keeps changing _____. (size, direction)
5. A car's generator makes current to keep the engine running and to recharge the car's _____. (engine, battery)

C. Answer the questions.

1. What is an electric motor? _____

2. What do electric motors use? _____

3. In an electric motor, what is the north pole of the electromagnet always lined up with? _____

